

Nature/Culture/Seawater

Stefan Helmreich

ABSTRACT Seawater has occupied an ambiguous place in anthropological categories of “nature” and “culture.” Seawater as nature appears as potentiality of form and uncontainable flux; it moves faster than culture—with culture frequently figured through land-based metaphors—even as culture seeks to channel water’s (nature’s) flow. Seawater as culture manifests as a medium of pleasure, sustenance, travel, disaster. I argue that, although seawater’s qualities in early anthropology were portrayed impressionistically, today technical, scientific descriptions of water’s form prevail. For example, processes of globalization—which may also be called “oceanization”—are often described as “currents,” “flows,” and “circulations.” Examining sea-set ethnography, maritime anthropologies, and contemporary social theory, I propose that seawater has operated as a “theory machine” for generating insights about human cultural organization. I develop this argument with ethnography from the Sargasso Sea and in the Sea Islands. I conclude with a critique of appeals to water’s form in social theory. [*nature-culture, maritime anthropology, social theory, Sargasso Sea, Sea Islands*]

WATER AS THEORY MACHINE

On October 17, 2009, 14 officials of the Maldives government convened a meeting on the seafloor, 20 feet below the water’s surface, to sign a document exhorting nations around the planet to cut carbon dioxide emissions. At an average of five feet above sea level, many of the 1,192 coral islands of the Maldives are in danger of vanishing beneath the Indian Ocean if climate change proceeds as many scientists predict. The Maldivian meeting, staged as an elaborate if serious photo opportunity, saw cabinet ministers outfitted in full scuba gear, and it mobilized seawater—in its apparition as what Claude Lévi-Strauss would have called maleficent water (against beneficent water, rain water)—as a symbol of drowning (see Figure 1).¹ The meeting was a call to recognize a local “culture” under threat from a global “nature” transformed by distant “cultures” of consumption and pollution. Water materialized as a cycling, hybrid substance, at once natural and cultural.

This anthropologically minded analysis presses the nature–culture binary to do a good deal of critical work—conceptual work conditioned by anthropology’s wider epistemological inheritance. As Marilyn Strathern might observe: “Western nature-culture constructs . . . revolve around the notion that the one domain is open to control or colonization by the other” (1980:181). Water oscillates between natural and cultural substance, its putative mate-

riality masking the fact that its fluidity is a rhetorical effect of how we think about “nature” and “culture” in the first place. Water as nature appears as both potentiality of form and uncontainable flux; it moves faster than culture, with culture often imagined in a land-based idiom grounded in the culture concept’s origins in European practices and theories of agriculture and cultivation (Williams 1976). Water as nature appears as that flowing substance that culture may be mobilized to channel—think of canal locks, dams, and irrigation networks. Water as culture, meanwhile, can materialize as a medium of pleasure, sustenance, travel, poison, and disaster.

I here consider water as substance and symbol in anthropological theory, asking how the nature–culture pair imposes particular qualities on water, which water is then sometimes imagined to overflow. In asking after water this way, I retool historian of science Peter Galison’s (2003) notion of a “theory machine,” an object in the world that stimulates a theoretical formulation. For Galison, networks of electrocoordinated clocks in European railway stations at the turn of the 20th century aided Einstein’s thinking about simultaneity. Animal husbandry provided a theory machine for Darwin. For French physicist Sadi Carnot, water was a theory machine; his second law of thermodynamics in the 1820s hypothesized that heat was a fluid that behaved like flowing water (Knight 2009). How has water operated as



FIGURE 1. Cabinet ministers of the Maldives meet on the seabed in October of 2009 to sign a document calling for global reduction of carbon emissions. (Photo by Mohammed Seeneen/ AP)

a theory machine in anthropology? How has water been framed by nature–culture? How has it in turn reframed nature–culture?

Water is not one thing.² For natural science, water’s effects depend on its state (solid, liquid, gas), on its scale (from molecular to oceanic), and on whether it is fresh or salty, still or turbulent, deep or shallow. For interpretative social sciences, water can be sacred substance, life, refreshment, contaminant, grave (see “In Focus: The Meaning of Water,” *Anthropology News*, February 2010). I fix in this article on seawater—mindful that rivers (Raffles 2002), lakes (Orlove 2002), rain (Boomgaard 2007), irrigation systems (Lansing 1991; Pandian 2009), glaciers (Cruikshank 2005), and other aqueous phenomena demand their own accounts.

In “Common Senses: Water, Sensory Experience and the Generation of Meaning,” Veronica Strang compares her ethnographies of water in Aboriginal north Australia and Dorset, England, to suggest that the variety of meanings attached to water issues from its form: “Water’s diversity is . . . a key to its meanings. Here is an object that is endlessly transmutable, moving readily from one shape to another: from ice to stream, from vapour to rain, from fluid to steam. It has an equally broad range of scales of existence: from droplet to ocean, trickle to flood, cup to lake” (2005:98). Strang suggests that water’s qualities of mutability “are crucial in that they provide a common basis for the construction of meaning” (2005:97). I agree with Strang on the mutability and multiple meanings of water but emphasize that such mutability has no meaning apart from human conceptions of it. Strang’s argument offers one kind of theory machine, positing that formal flexibility in nature determines flexibility in culture.³ Strang’s claim is part of a larger turn to “the form of water” (2005:97) in recent anthropological and social theory.

In what follows, I track that turn and its history using as narrative prompts moments from fieldwork I conducted among biological oceanographers on a scientific vessel in the Sargasso Sea and at a research station on one of Georgia’s Sea Islands. I use my Atlantic ethnography—just one portion of a several-year-long, multisited study of marine biology (Helmreich 2009)—to motivate a discussion of seawater imagery and metaphors in early ethnography, in maritime anthropology, and in recent social theory. I trace a three-part story. First, I suggest that in early anthropology the qualities of seawater were portrayed impressionistically, even Romantically. Using Franz Boas’s famous suggestion that the color of seawater is a matter of cultural construal, rather than of sheer empiricity, I argue that such figures as Bronislaw Malinowski, Raymond Firth, Claude Lévi-Strauss, and Margaret Mead treated water, paradoxically, as atheoretical, a substance on which to meditate when they were not building social theory. Second, I discuss how, in maritime anthropology, water became a more explicit substance to think with, its materiality a crucial factor in accounts of fisher people. Third, I show how in today’s social theory—in the work of Paul Gilroy, Zygmunt Bauman, and Peter Sloterdijk, for example—scientific descriptions of water’s form, molecular and molar, have become prevalent in figuring social, political, and economic forces and dynamics.

I argue that seawater has moved from an implicit to an explicit figure for anthropological and social theorizing, especially in the age of globalization, which is so often described in terms of currents, flows, and circulations. Indeed, I suggest that, in light of such tropes, “globalization” might also be called “oceanization.” But although directing salutary attention to watery materiality, such turns to “the form of water” can conjure new reifications, which should prompt anthropologists to puzzle further about how best to think

across nature, culture, water, and theory. Rather than treat water as a “theory machine,” then, I conclude—drawing on an image often used in nautical talk—that anthropologists might work athwart theory: that is, they might think of theory neither as set above the empirical nor as simply deriving from it but, rather, as crossing the empirical transversely (see Helmreich 2009:23–25). Theory (and, for that matter, seawater) is at once an abstraction as well as a thing in the world; theories constantly cut across and complicate our descriptive paths as we navigate forward in the “real” world.

COLORS OF SEAWATER AND SOME ORIGINS OF ANTHROPOLOGY

In May of 2004, I joined microbiologists from the University of Georgia on a ten-day voyage to the Sargasso Sea. Scientists on the *Endeavor* were studying how quickly photosynthetic bacteria in the ocean reproduced; such knowledge could help build models of climate change. But something else caught my attention as I followed scientists around the ship, something that became the impetus for this article. These scientists were interested in how photosynthesizing microbes floating at different water depths used the colors of light available at different distances from the water’s surface to metabolize. Certain times of day (dawn, noon, dusk) could prompt more or less DNA synthesis among strains whose photosynthesis was tuned to distinct frequencies of light. The color of light on water emerged as a qualitative concomitant of a quantitative phenomenon: cell replication.

One origin story for anthropology goes back to Boas’s reflections on the color of seawater as a matter decided divergently within distinct cultural epistemologies. Looking back on his 1881 University of Kiel physics-geography dissertation, “Contribution to the Understanding of the Color of Water,” Boas wrote,

In preparing my doctor’s thesis I had to use photometric methods to compare intensities of light. This led me to consider the quantitative values of sensations. In the course of my investigation I learned to recognize that there are domains of our experience in which the concepts of quantity, of measures that can be added or subtracted like those with which I was accustomed to operate, are not applicable. [Boas 1938:201]

Seawater prompted Boas to consider qualitative aspects of seeing (Stocking 1982:142).⁴ Seawater, seen, became a theory machine for the qualitative, relativist cultural epistemology for which Boas became known—which perhaps is fitting because the word *theory* derives from ancient Greek for “to look on” and “to contemplate.” Alexandra Lorini (1998) takes this argument further, suggesting not only that “water in its different forms, and the human activities related to it, was at the center of Boas’s geoanthropological descriptions of the Northwest Coast” but also that the mutability of water—in rivers, rain, snow—served as a model for Boas’s belief in the mutability of cultural practice.⁵

Seawater figured more practically in early anthropology as the medium supporting passages toward fieldwork. Gísli

Pálsson writes, “As a result of voyages by sea, different and isolated worlds were connected into a global but polarized network of power-relations. Prior to these voyages, the idea of anthropology did not exist. In a very real sense, then, anthropology, the study of humanity, is as much the child of seafaring as of colonialism” (1991:xvii). Such European seafaring saw the sea as a blank space between nation-states (Steinberg 2001).⁶ Malinowski’s stay in the Trobriands during World War I resulted from his status as an Austro-Hungarian citizen permitted to substitute internment as an enemy alien in Britain with a stay in the Western Pacific. For Malinowski, the Trobriands became anthropological islands out of history because of a view of the sea as a dissociating space (see Kuper 1983:12; on “people without history,” Wolf 1982).

European anthropologists often rhapsodized about the waters over which they passed. Malinowski, in *Argonauts of the Western Pacific*, wrote of “intensely blue, clear seas” (1984:49) and reflected on how “the sea will change its colour once more, become pure blue, and beneath its transparent waters, a marvelous world of multi-colored coral, fish and seaweed will unfold itself” (1984:220; many more examples could be obtained from *Argonauts* [1984], *The Sexual Life of Savages* [1929], and *Coral Gardens and Their Magic* [1935]). Firth, in *We the Tikopia*, recalls that “in the evening the shades of the sea vary from a steely grey where the light is reflected on it through a pale green of the reef waters inshore to a darker green near the reef edge, and an indigo beyond” (1983:29). Lévi-Strauss’s *Tristes Tropiques* tells of the “blue crucible of the sea” (1995:78) and of “a gleaming, satin-smooth tropical sea” (1995:88).⁷

We can use Boas to help make sense of such imagery. Accounts of the color of seawater often bespeak qualitative intuitions about the meaning of the ocean. For Malinowski, Firth, and Lévi-Strauss, seawater is a symbol of changeable nature. Water functions not so much as theory machine but as an other to theory: as description. These anthropologists hold “theory” in abeyance while at sea, only to set it in motion once the ethnographer hits land. Malinowski’s opening tableau in *Argonauts* is canonical: “Imagine yourself suddenly set down surrounded by all your gear, alone on a tropical beach close to a native village, while the launch or dinghy which has brought you sails away out of sight” (1984:4). Michael Taussig, in *What Color Is the Sacred?* (2009), suggests that Malinowski’s fixation on color uses detail to conjure the ineffable. Taussig offers this tidbit from Malinowski: “During that walk I rested intellectually, perceiving colours and forms like music, without formulating them or transforming them” (2009:84). Without, that is—in the terms of my analysis—using color and form as elements for thinking, for theorizing.⁸

Such aesthetic visions of seawater are European, Romantic. They are signs of nostalgia and fantasy. Elizabeth DeLoughrey has argued that “colonial mystifications of an idyllic South Seas . . . interpellated the Pacific Basin as a vast, empty (feminized) ocean to be filled by masculine European

voyagers” (2007:103), and insofar as this tradition continued in the anthropology of such figures as Malinowski, whose writings are lush with what he calls a “half-idyllic South Sea pastoral” (1929:106), one might, following Catherine Lutz (1995) in “The Gender of Theory,” detect a masculine cast to makings of “theory” as a land-based activity—although Margaret Mead’s 1971 rhapsody on the “gleaming sea” in *Coming of Age in Samoa* also aestheticizes the sea. So, too, in an Atlantic context, does Zora Neale Hurston’s 1938 ethnography of Haiti and Jamaica, *Tell My Horse* (2008)—although Hurston also writes of ocean floods and drowning, pointing to the Atlantic as a distinct theory machine in African American anthropology (more about this below).⁹

MARITIME ANTHROPOLOGIES

As the science party with which I traveled approached Bermuda, a question arose as to who would own the microbes that the scientists on *Endeavor* gathered. Outside Exclusive Economic Zones—territorial waters extending 200 miles off coasts of ocean-fronting nation-states—samples pertain to the “High Seas,” fair game for whomever gathers them. To work in Bermuda’s Exclusive Economic Zone, our voyage secured permission from Britain’s Foreign and Commonwealth Office because Bermuda is a dependency of the United Kingdom. Because samples were not headed for a biotech company but were meant as data for oceanographers, permission, I was told by the chief scientist, was granted without difficulty (cf. Hayden 2003b).

That story contrasts with another from an expedition in the Sargasso in 2004 organized by genome scientist J. Craig Venter, who received permission for microbe sampling from the Bermuda Biological Station for Research (BBSR). Shortly after that body granted permission, the Bermudan Ministry of the Environment objected because a biotech company had “patented a fluorescing protein extracted from coral collected under its agreement with the BBSR” (Pottage 2006:152). The BBSR director responded to the ministry’s complaint saying, “‘seawater moves quite fast off Bermuda,’ and that as a result the collected samples were likely to contain bacteria ‘from many Exclusive Economic Zones of many countries in the world,’ making ownership ‘a difficult and complicated issue’” (Pottage 2006:152, references omitted).

Here, the Bermuda Biological Station director uses seawater as a theory machine to warrant a picture of a “nature” that moves too fluidly to be captured by “culture.” Although phrased in the language of microbial oceanography, the issue can be compared with another that has long occupied maritime anthropology: namely, how people think about piscine property in ocean resources (e.g., Johnson 1996; McCay and Acheson 1987).¹⁰ Are microbes, to borrow terminology from this field, “fast fish” (owned by someone by virtue of labor) or “loose fish” (in a “natural” state of “common ownership”; see Pálsson 1991:45)? One objective of maritime anthropology, often carried out in applied anthropology, has been to show how people think about such questions—and,

more, to demonstrate the rationality of local knowledges in managing fish stocks. Maritime anthropologists have also studied how technocratic experts are possessed of culturally particular practices around the sea (see Poore 2003 and a special issue of *Maritime Studies* on “cyborg fish” [Johnsen et al. 2008]). Maritime anthropology is a fruitful place to look for distinct deployments of seawater as theory machine.¹¹

In early articulations, maritime anthropology projected land-based notions onto seafaring life (Hewes 1948). Tim Ingold (2000:58–62) observes that foraging wild food resources, on land or sea, has been represented as akin to activities of nonhuman animals, whereas agricultural cultivation has been associated with production—and thus, by extension, culture. Early literature on fishing communities focused on the hybrid represented by peasant fishermen, like those studied by Firth (1946). Only with one foot planted on *terra firma* could these fishermen appear as legitimate subjects of study.

Treating the sea as a zone to be brought under containment has led to what Pálsson (1998), drawing on Michel Foucault, calls “the birth of the aquarium,” the rise of management regimes that treat the sea as a mammoth aquarium that must be enclosed. Such enclosure is predicated on a separation of nature and culture, with the sea scripted as a hypernature until now outside culture. In her ethnography of a Marine Protected Area in Tanzania, Christine Walley (2004) reports that people of Tanzania’s Mafia Island did not share the distinction between nature and culture to which transnational marine scientist park consultants were committed; far from seeing the sea as a wild Other to human culture, their seascape was a space of fishing, fish, and biographically meaningful stories of seafaring.

Treating the sea as naturally distinct from the land has other pitfalls. One is to assume that the ocean is ontologically unpredictable and can therefore explain, say, the apparition of magic in fishing practice (see, e.g., Gupta 2003). Such a model, owed, canonically, to Malinowski, operates as a functionalist theory machine: oceanic vagaries produce urgency, which in turn produces a certain kind of ritual engagement. Another hazard is a treatment of the sea as fluid and unbounded prior to its enclosure in “culture.” When Ingold writes that, “as terrestrial mammals, we humans stake out our differences on the land; the sea, however, is a great dissolver—of time, of history, of cultural distinction” (Pálsson 1991:x), this must be heard as a summary of an historically particular view. Such a culturally specific vision animates the fluid ontology that geographer Sarah Whatmore assigns to the sea: “The spatial codification of ‘real’ property as a grid-like surface finitely divisible into mutually exclusive estates is both unimaginable and impracticable if we substitute the socio-materialities of land for those of air or water” (2001:60). But seeing the sea as the most unbounded nature there is has a lineage—one connected to colonial projects of keeping the high seas “free,” outside sovereign territorializations. Western constructions of the “nature” of the sea—contrasted to the grounded “culture” of

land, as “fluid” and “protean” (Raban 1993) or, as early anthropologists who traveled to “the field” by ship might have had it, as “another world . . . without human culture” (Davis 1997:100)—are not universal.¹² But they remain powerful, perhaps nowhere so much as in views of ocean resources as “by nature” common.¹³ That notion motivated Venter’s vision of his sea sampling, which got him in trouble when he entered Ecuadorian waters. As he put it at an MIT lecture, “Here, I thought I was just out sailing free in the ocean and somebody’s claimed it all!” (Venter 2004).

Maritime anthropology has demonstrated that how people understand property in ocean resources has to do with local systems of management and meaning, rather than with the nature of the sea as such (see McCay and Acheson 1987; Olson 2010). Liberal economists hold that the seas are a common resource that invites overexploitation owing to a natural selfishness that drives human action. Maritime anthropologists, however, have documented a variety of norms around marine resource use. Pálsson, quoting Arthur McEvoy, notes:

Hardin’s thesis [1968] of the tragedy of the commons represents a “mythology” of resource use, a model “in narrative form for the genesis and essence of environmental problems.” The claim that access to the ocean is open for everyone in most fishing societies, and that this is the root of all environmental problems, needs to be qualified. . . . The theory of the tragedy of the commons, then, is an important means for making history, an authoritative claim with a social force of its own, and not simply an attempt to understand the world. [1991:154]

Scholars thus detail the diversity of kinds of sea tenure, “collectively managed informal territorial use rights in a range of fisheries previously regarded as unownable . . . ways in which inshore fishermen perceive, name, partition, own and defend local sea space and resources” (Cordell and McKean 1992:183). How that “space” is imagined is relational. Ajantha Subramanian, in her study of South Indian artisan fishers competing with mechanized trawlers for fish, describes “fishermen in pursuit of mobile species” (2009:158) who operate at different speeds with respect to the fish they seek. Mobility is not “in the nature” of fish so much as a relational category that depends on technologies and speeds of access (cf. Lowe 2006). The way water operates as a theory machine depends on how quickly one frames it moving, flowing, with respect to “culture.”¹⁴ If we return to the claim made by the Bermuda Biological Station for Research—that “seawater moves quite fast off Bermuda”—we see that a view from maritime anthropology demonstrates that this claim gets traction because of a calibration of slippery nature to stable culture.

OCEANIZATION

Scientists at the University of Georgia gather microbes from Atlantic sites other than the Sargasso. One is the Sapelo Island Microbial Observatory (SIMO), sited on one of the Sea Islands off Georgia. Sapelo is a marshy landmass the size of Manhattan with a population of around 70, mostly

Geechee and Gullah descendants of Africans brought during slavery to the island in the 19th century. Locals’ sense of the sea contrasts with University of Georgia scientists, who are mostly white and who commute to the island from the mainland, approaching it not as a home but as a lab for saltmarsh ecology, thinking of it not so much as culture as nature.

Cornelia Bailey, of the last generation to be born on the island, operates a self-catering guesthouse on the island. She is at the center of a movement to revitalize Sapelo with tourism aimed at people who want to research Geechee or Gullah roots or learn Sea Island history. Speaking with her during a visit to Sapelo and reading her memoir, *God, Dr. Buzzard, and the Bolito Man: A Saltwater Geechee Talks about Life on Sapelo Island, Georgia* (Bailey with Bledsoe 2000), I learned about an Atlantic different from the one I encountered on *Endeavor*’s trip to the Sargasso. Bailey (with Bledsoe) writes, “We were surrounded by water, yes, but the old people were always worried about their children drowning. They’d tell kids, ‘Stay out of the water. Stay out of that water. Don’t go in that water.’ . . . It was like they distrusted the water because that water had carried our ancestors here from their home in Africa” (2000:209–210). Sapelo thereby becomes visible as a point on the black Atlantic—that analytic unit Paul Gilroy (1993) has suggested can link histories kept apart by such landed terms as *African* and *African American*. The distrust of water described by Bailey summons up the history of the Middle Passage, the forced transport of Africans to the Americas in the service of the slave trade.

But as Bailey’s designation of herself as a *Saltwater* Geechee suggests, the sea has also been a positive presence in the black Atlantic, particularly in the Sea Islands (see Ebron 1998). Water is a buffer from mainland politics as well as a baptismal substance associated with swimming escapes from slavery. So, where scientists on Sapelo frame Geechee residents as having a “local” relation to the sea, Bailey—who has traveled to Africa in search of ancestral connection—conjures a “global” imagination of the ocean, one connected to what Gilroy describes as the “rhizomorphic, fractal structure of the transcultural, international formation I call the black Atlantic” (1993:4). Gilroy’s move—one of the first in a trend in historical studies to pose oceans as units of cultural analysis (see, e.g., Creighton and Norling 1996; Finamore 2004; Klein and Mackenthun 2004; Moorthy and Jamal 2009)—operates as a theory machine for renarrating sociality.

Work on the black Atlantic, along with anthropologies of the Indian Ocean (e.g., Ho 2006; Walley 2004) and cultural studies of the Pacific (e.g., Connery 1995; Hau’ofa 1993; Subramani 2001), marks a moment of rethinking the “natures” that subtend “cultures” (often providing a resource for metaphors, too; for example, in Enseng Ho’s ethnography of trans-Indian Ocean kinship, he explains, “Hadramis, especially the sayyids, were a strong current in this restless ocean” [2006:102]). I suggest that these works might be read not only as responses to “globalization” but also as offering a

new framework: *oceanization*, a reorientation toward the seas as a translocally connecting substance.¹⁵ John Kurien (2001) has pitched such an approach in a multinaturalist direction, suggesting thinking about “seacosystems”; he asks social scientists to attend to tropical and temperate seacosystems as enmeshed in distinct ecological and sociopolitical dynamics.

The use of maritime analogies by anthropologists seeking to reconceptualize analysis owes much to the work of Fernand Braudel (1972) on the Mediterranean and to the introduction into anthropology of a world-systems approach by those, like Sidney Mintz (1985), interested in an Atlantic space crisscrossed by ships, slaves, and sugar. Scholars have become interested in rethinking the world in fluid terms and also in looking at those things—refugees, nomads, weapons, drugs, fish—that challenge borders because they are imagined to “flow” across them (cf. Malkki 1992). As Pamela Ballinger writes,

authors of both popular and scholarly accounts of globalization often employ watery metaphors—of flows, fluidity, circulations—in an effort to capture the increasing unboundedness of movements of capital, communications, and persons. The sea and its qualities thus come to symbolize the growing permeability of borders in a globalizing world, even as the oceans themselves literally represent both medium and site of globalization. [2006:154–155]¹⁶

Thinking with watery metaphors has become a prescriptivist enterprise. We should be thinking with water—including oceans—say many theorists (e.g., Chambers 2010).¹⁷

What kind of theory machine is seawater in contemporary social theory? For some, the ocean is a boundary-blurring body, a space of liberation. Epeli Hau‘ofa, of the University of the South Pacific, argues that Europeans have belittled Oceania by construing it as a scattering of islands, rather than as a “sea of islands.” This “sea of islands,” continues Hau‘ofa, is actually connected, not divided, by water (Hau‘ofa 1993; see also Thomas 1997).¹⁸ For others, the rise of the ocean in social thought represents the unwelcome return of “capital’s myth element,” the site of unimpeded circulation (Connery 1995:289).

For still others, the ocean’s liquidity summons up the specter of maleficent water. Sociologist Zygmunt Bauman, for example, worries that “liquid modernity” unmoors people from grounds of politics; in liquids, he writes, quoting the *Encyclopedia Britannica*, “molecules are preserved in an orderly array over only a few molecular diameters” (2000:1), with the result that large-scale structures deliquesce. Philosopher Peter Sloterdijk sees in globalization a shrinking and multiplication of spheres of human action, fusing and fissioning, and employs the image of “foam” to describe this state, which he sees as negative. In “Towards an Amphibious Anthropology,” Rene ten Bos summarizes Sloterdijk’s position: “Politically, foam is uncontrollable and unruly: we live our lives in what can best be described as a morphological anarchy” (2009:85). What I have called, drawing on Strang, the turn to the “form of water” takes shape at a variety of scales but usually with some appeal to

the formal properties of water: its hydrography as a connecting element for community and commerce, its molecular structure, and so forth. If the sea is a potent material for the formation of theory, it may be because, as Taussig has it, “the sea has disappeared into our heads” (2006:99)—by which he means that the ocean is not, for many of us, a quotidian presence but, rather, a space of imagination. Scholars across disciplines should think critically about this turn to water, recognizing, for example, that it often appeals to scientific descriptions of water as though these have meaning in themselves and acknowledging that this turn is conditioned by an environmentalist common sense that takes water to be a self-evidently “global” substance.

Recent discussions in feminist theory point one way forward. Writers have examined the use of water metaphors—flux, flow, sea—to speak of women’s worlds and have pointed to the essentialism such rhetoric can summon (cf. Game 1995:192). Scholars worry about the “wave” metaphor (first, second, third) in histories of feminism. Edna Keah Garrison argued in 2005 that the *feminist oceanography* (a term coined by Deborah Siegel [1997]) of the wave narrative homogenizes women, linearizes movement, and posits times of lulls, which mismeasures histories of activism (see Spigel 2004). Alison Wylie is more sanguine, suggesting that

waves do not so much overtake and succeed/supersede one another as rise and fall again and again in the same place, transmitting energy in complicated ways . . . waves propagate and interact even in the simplest of circumstances . . . waves are generated in many different ways: by river or tidal currents, by snags and obstructions under water, by wind and traffic on the surface, and, on rare and catastrophic occasion, by grinding shifts in tectonic plates. [2006:173]

Wylie’s is a call to think with the form of water, yes, but it is also tuned to empirical variation as well as the inescapable rhetoricity of such thinking.

WORKING ATHWART THEORY, THINKING THROUGH WATER

In a review essay on water and sustainability, Benjamin Orlove and Steve Caton (2010) urge anthropologists to treat water as “a total social fact.” Crucial to such treatment, they insist, is an understanding of “the materiality of water” (Orlove and Caton 2010:402), anchored in water’s molecular properties, which shape the quantities in which water can manifest (from drop to deluge) and the qualities that water can support (from purified to polluted). Although Orlove and Caton allow that “quantity and quality are always experienced as social constructions” (2010:403), they suggest that limits to such constructions inhere in water’s materiality (insofar as Orlove and Caton appeal to molecularity, they also call on water’s form).

My petition to think critically about the turn to the form of water in social theory asks not for the further reach of “social construction,” although attending to historical controversies about water’s materiality—form (was it

an element? a compound?) can generate useful hesitations about ontological claims (see Chang in press; Illich 1985; Miller 2004). Rather, I am interested in how simultaneously to employ water as a theory machine, when useful, and to treat both water and theories as things in the world. I think of this approach as operating “athwart theory”: that is, as tacking back and forth between seeing theories as explanatory tools and taking them as phenomena to be examined. Such an account does not separate meaning and materiality because such sequestering only reinstalls a preanalytic nature–culture.

I return, in conclusion, to an oceanic phenomenon of contemporary “global” concern, a bookend to the Maldives vignette with which I began this article. The 2010 Gulf of Mexico oil spill—like the crisis faced by the Maldives, bound up with fossil fuel use—also churned up nature and culture and may best be understood by refusing that binary. The spill became available to comprehension because of an intermingling of the empirical and the theoretical. Awareness of the spill and its extent emerged at a variety of levels, from shoreline experiences of a slick arriving on beaches to fishers’ and shrimpers’ experience of their poisoned supply chain. But the phenomenon was also made apprehensible through models—simulations that use data from satellites and submarine sensors and that plug these into algorithms that model flow and currents. The very “empiricity” of the spill—including as a “national” and “global” event—became manifest through machines instantiating theories of seawater behavior (cf. Edwards 2010 on climate models; Helmreich 2006 on simulations of the 2004 Indian Ocean tsunami). Such simulations are both theoretical models of the world and things in the world that are mobilized in the service of social priorities and agendas.¹⁹

Rather than use water as a theory machine itself, then, I would suggest that any social scientific or historical account of the spill track how oceanographers, politicians, deep-water drilling operators, citizens, NGOs, and other actors themselves used water as a theory machine to anchor analyses of the spill (or, for that matter, oil, which for drilling operations may be the more relevant substance, with water in the way).²⁰ Such a reading does not treat the form or substance of water as the privileged province of scientific description, which is then simply drafted into cultural accounts that give that form different “meanings” (following Ivan Illich in his *H₂O and the Waters of Forgetfulness* such a reading would, in the name of social and symbolic analysis, “refuse to assume that all waters may be reduced to H₂O” [1985:4]). Rather, such an analytic practice takes scientific accountings—including social scientific ones—as events in the world in need of examination. Put another way, I suggest that scholars import the antiessentialist insights developed to rethink biogenetic, bioengineered, and ecological “nature” in the age of biotech (Escobar 1999; Haraway 2003) into their understandings of the “nature” of seawater. Seawater is both good to think with and here to live with, in multifarious actuality.²¹

Stefan Helmreich *Department of Anthropology, Massachusetts Institute of Technology, Cambridge MA 02139*

NOTES

Acknowledgments. This article grew from an April of 2010 presentation at UC Berkeley’s Environmental Politics Colloquium. I thank Jake Kosek for the invitation and participants for commentary, particularly respondent Alastair Iles. An earlier draft was delivered as a plenary lecture on “Naturecultures” at the Meetings of the Society for Cultural Anthropology, in Santa Fe, New Mexico, May of 2010. I thank Brad Weiss and Marisol de la Cadena for inviting me. A 2010 Distinguished Fellowship at Durham University’s Institute of Advanced Study on “Water” provided essential support. Heather Paxson and Bill Maurer made invaluable suggestions. Julie Olson provided a welcome reading. I thank Tom Boellstorff and three anonymous reviewers for *American Anthropologist*.

1. “Lévi-Strauss commented . . . on the ubiquity of two kinds of water in South American myths, creative water of celestial origin and destructive water of terrestrial origin” (Shanklin 1989:234). For anthropologies of water symbolism, see Derné 1998, Tetart 1997, Treitler and Midgett 2007.
2. Neither is anthropology; one could distinguish how national traditions (British, French, American, Japanese, Icelandic, Greek) inflect sea-watery semiotics differently owing to maritime histories, including practices of “overseas” fieldwork (Bošković 2008).
3. Water is a similar theory machine for Douglas in *Purity and Danger*, although hers operates from society to nature:

These North California Indians who lived by fishing for salmon in the Klamath river, would seem to have been obsessed by the behaviour of liquids, if their pollution rules can be said to express an obsession. They are careful not to mix good water with bad, not to urinate into rivers, not to mix sea and fresh water. . . . I insist that these rules cannot imply obsessional neuroses, and they cannot be interpreted unless the fluid formlessness of their highly competitive social life be taken into account. [2002:158]

4. Bill Maurer suggests that Boas’s invocation of sensations—“a sensible realm, an empirical in the sense of evident to the human senses—actually serves to make a theory machine that divides the quantitative from the qualitative” (personal communication, July 21, 2010).
5. Boas’s reflections on water as encultured substance contrast with Durkheim, who naturalizes water as preanalytic stuff: “Sensual representations are in a perpetual flux, they come after each other like the waves of a river, and even during the time that they last they do not remain the same thing” (Durkheim 1976:433).
6. That view, supported by the legal making of the High Seas (in Dutch jurist Hugo Grotius’s 1609 *Mare Liberum* [*Freedom of the Seas*]), has in European philosophy been leveraged into claims about ocean ontology. Barthes “claimed that the sea ‘bears no

message,' not merely because of its power to reflect rather than contain a gamut of different meanings but because of its seeming absence of evidence" (Batra and Messier 2008:4). Bachelard thinks of water as "substantive nothingness" (Batra and Messier 2008:4). Douglas quotes Mircea Eliade, from 1958, on water as a symbol of creative formlessness: "In water everything is 'dissolved,' every 'form' is broken up, everything that has happened ceases to exist; nothing that was before remains after immersion in water, not an outline, not a 'sign,' not an event" (Douglas 2002:162).

7. Although Lévi-Strauss's meditations on seascapes are often painterly, his narration of his ocean travels is fraught. He sees the sea as a path toward research in Brazil in the 1930s and as an escape from Vichy France to New York in the 1940s. Lévi-Strauss ponders an ironic fantasy of the sea: "I had a vision of myself resuming my wandering existence on the high seas, sharing the toil and the frugal existence of a handful of sailors who had ventured forth on a clandestine boat, sleeping on deck, and forced during long and empty days into a salutary intimacy with the sea" (1995:24).
8. Compare recent attempts to think with the sound of seawater. Zerner's "Sounding the Makassar Strait" (2003) explores how "calls" across water of fishermen in Sulawesi describe a soundscape that complicates the visual idiom within which state power has sought to contain the sea. Nigel Thrift has suggested whale communication as a model for human communication: "What is interesting is the way in which human society is gradually gaining the same kind of capacity as whales: we are increasingly beings who can live with distant others as if they were close to" (2003:143).
9. Herskovits (1941) stages the ocean as space of history and resistance, writing of "salt-water" Negroes—people transported from Africa—as agents of cultural transmission. Hurston mobilizes two maritime images: the spyglass and the horizon (Jacobs 1997).
It is worth noting another chromatic of the sea: the sea at night. Henk Driessen, in "A Janus-Faced Sea" uses ethnography among clandestine trans-Mediterranean migrants to "offer a counterpoint to the romantic image of a benevolent Méditerranée—smooth as glass, bathed in sunshine, blue, green, and turquoise colours and consumed by mass tourists" (2004:42). Writing that, "Over the past ten years the clandestine, mostly nocturnal, crossing of the Mediterranean has become a dangerous passage into Europe for an increasing number of migrants from African and Asia" (2004:45), Driessen employs the maleficent waters of nocturnal seas as a theory machine for understanding dispossession.
10. Maritime anthropology offers ethnographies of fishing communities (e.g., Acheson 1988; Barth 1966; Butcher 2004; Gunda 1984; McCay 1998; Pálsson 1991; Spoehr 1980; Vestergaard 1990), histories of seafaring (e.g., Finney 1994; Frake 1985; Gladwin 1970), and analyses of coastal tourism (e.g., Boissevain and Selwyn 2004; Desmond 1999). Scholars have examined fishing symbolism (e.g., Cordell and Fitzpatrick 1987); documented how fishing is structured around gender, race, class, indigeneity (e.g., Chapman 1987; Garrity-Blake 1994; Gerrard

2007; Kaplan 1984; Nieuwenhuys 1989; Søreng 2007); and tracked fishing alongside migration, trade, development, and environmentalist politics (e.g., Bestor 2001; Dedina 2000; Einarsson 1995; Nadel-Klein 2003; van Ginkel 2008). I thank Pamela Ballinger, with whom I developed early arguments on maritime anthropology.

11. An early angle through which seawater was viewed anthropologically was as host to natural resources for human cultural enterprise. Lewis Henry Morgan (1964:10) named fishing as a skill marking humanity's transition to the Middle Stage of Savagery (his logic being that fish required cooking to eat; see Pálsson 1991:24–34). In 1906, Marcel Mauss with H. Beuchat documented coastal lifeways of the Inuit, reporting that Eskimo sociality was organized around summer and winter regimes and noting that "if a child is born during the summer, his first meal consists of soup made from some land animal, or from a river fish cooked in fresh water; the 'winter' child's first meal is soup from some sea animal cooked in salt water" (1979:60). Kroeber (1960) examined fishing among Indians of northwestern California.
12. Nor are they monolithic, even within the so-called West, as historians of the modern seaside have demonstrated (Corbin 1995; Lencek and Bosker 1998). Looking at "culture and nature underwater," to borrow Susan Davis's (1997:53) phrase, can demonstrate that there are many ways to parse watery realms.
13. Accounts of water as "naturally" common appear in anthropological discussions of hydrogeopolitics. So, for example, in Trawick's discussion of the moral economy of water in an Andean village, he explains:

The moral economy of water is a product of the unfolding of nature and culture together, of their mutual transformation. It is the outcome of a process whereby the human mind and spirit have expressed themselves within a material reality that is itself partly, but only partly, a social construction. It partly reflects necessity, the impact of material constraints, but it is also, in the final analysis, an expression of certain eternal elements of human desire and intent. In the Andes, this way of life and worldview emerged long ago in the sharing of water, and irrigation has helped to preserve it and hold it fast ever since (2001:374).
14. Maritime anthropology also contests the idea that the ocean is naturally dangerous. Penny McCall Howard comments, "Historian Marcus Rediker has argued in *Between the Devil and the Deep Blue Sea* (1989) that we distort 'the reality of life at sea by concentrating on the struggle of man and nature,' which effectively obscures the role of exploitation and economic pressures in seafarers' lives" (2010:9).
15. "Oceanization" (s.v.) has a natural science meaning: "The conversion of continental crust into the much thinner and petrologically distinct oceanic crust" (Oxford English Dictionary 2008). I do not suggest, however, that social scientists develop their own "oceanization," as though it could be one thing. Indeed, in oceanography, the properties assigned to seawater are not fully generalizable but, rather, are particular to oceans on Earth:

- currents are motored by wind, modulated by the planet's rotation, and organized into loops called gyres; circulations refer to the three-dimensional conveyance of water across hemispheres based on temperature and saltness; tides depend on the moon.
16. For more analytics of flow, see Tsing 2000 and Appadurai 1996.

Others have thought through sea creatures. Maurer (2000), in "A Fish Story," thinks of capital as akin to *killifish*, marshy creatures whose embryonic development can halt and recommence, depending on the presence of salt water. Maurer troubles stories of steady circulation in global capitalism (cf. Hayden 2003a).
 17. Perhaps against a tradition of thinking with land: the social contract theories of John Locke and Jean-Jacques Rousseau appeal to a state of nature, a ground on which to fashion ideas about social relations. At least for Locke and Rousseau, that nature is literally a ground; their states of nature are all agricultural, terrestrial. Locke's vision of property is sited in allegories of labor invested in undomesticated land. Rousseau has nations depending on fertility of soil.
 18. Compare to Boellstorff, who in *The Gay Archipelago* argues, "For gay and lesbi Indonesians, the self is not that which moves from island to island; it is the water itself, lapping up on multiple shores at the same time" (2005:211). Compare Helmreich 2009 on Hawaiian archipelagic identity.
 19. See <http://blog.ushahidi.com/index.php/2010/05/08/labbb/> (accessed September 17, 2010) for an Internet map of the oil spill generated by environmental justice group Louisiana Bucket Brigade.
 20. Thanks to Valerie Olson for this insight.
 21. This phrasing plays with Lévi-Straussian ideas but also invokes the words of Donna Haraway. In *The Companion Species Manifesto*, she writes, "Dogs are not surrogates for theory; they are not here just to think with. They are here to live with" (2003:5).
- REFERENCES CITED**
- Acheson, James M.
1988 *The Lobster Gangs of Maine*. Hanover, NH: University Press of New England.
- Anthropology News
2010 In Focus: The Meaning of Water. *Anthropology News* 51(2):4–11, 22–26.
- Appadurai, Arjun
1996 *Modernity at Large: Cultural Dimensions of Globalization*. Minneapolis: University of Minnesota Press.
- Bailey, Cornelia Walker, with Christena Bledsoe
2000 *God, Dr. Buzzard, and the Bolito Man: A Saltwater Geechee Talks about Life on Sapelo Island, Georgia*. New York: Anchor.
- Ballinger, Pamela
2006 Watery Spaces, Globalizing Places: Ownership and Access in Postsocialist Croatia. In *Contemporary Studies in Economic and Financial Analysis*, vol. 88: European Responses to Globalization. Janet Laible and Henri J. Barkey, eds. Pp. 153–157. Bingley, UK: Emerald Group.
- Barth, Frederik
1966 *Models of Social Organization*. London: Royal Anthropological Institute.
- Batra, Nandita, and Vartan P. Messier
2008 *The Multitudinous Seas: Matter and Metaphor*. In *This Watery World: Humans and the Sea*. Vartan P. Messier and Nandita Batra, eds. Pp. 1–19. Newcastle upon Tyne, UK: Cambridge Scholars.
- Bauman, Zygmunt
2000 *Liquid Modernity*. Cambridge: Polity.
- Bestor, Theodore C.
2001 Supply-Side Sushi: Commodity, Market, and the Global City. *American Anthropologist* 103(1):76–95.
- Boas, Franz
1938 An Anthropologist's Credo. *Nation* 147(6):201–204.
- Boellstorff, Tom
2005 *The Gay Archipelago: Sexuality and Nation in Indonesia*. Princeton: Princeton University Press.
- Boissevain, Jeremy, and Tom Selwyn, eds.
2004 *Contesting the Foreshore: Tourism, Society, and Politics on the Coast*. Amsterdam, the Netherlands: Amsterdam University Press.
- Boomgaard, Peter, ed.
2007 *A World of Water: Rain, Rivers and Seas in Southeast Asian Histories*. Leiden, the Netherlands: KJTLV.
- Bošković, Aleksandar, ed.
2008 *Other People's Anthropologies: Ethnographic Practice on the Margins*. New York: Berghahn.
- Braudel, Ferdinand
1972 *The Mediterranean and the Mediterranean World in the Age of Phillip II*, vol. 1. New York: Harper and Row.
- Butcher, John G.
2004 *The Closing of the Frontier: A History of the Marine Fisheries of Southeast Asia*. Pasir Panjang, Singapore: Institute of South Asian Studies.
- Chambers, Iain
2010 Maritime Criticism and Lessons from the Sea. *Insights* 3(9). <http://www.dur.ac.uk/ias/insights/volume3/article9/>, accessed September 29, 2010.
- Chang, Hasok
In press *Is Water H2O? Evidence, Pluralism and Realism*. Dordrecht, the Netherlands: Springer.
- Chapman, Margaret C.
1987 Women's Fishing in Oceania. *Human Ecology* 15:267–289.
- Connery, Chris
1995 The Oceanic Feeling and the Regional Imaginary. In *Global/Local: Cultural Production and the Transnational Imaginary*. Rob Wilson and Wimal Dissanayake, eds. Pp. 284–311. Durham, NC: Duke University Press.
- Corbin, Alain
1995 *The Lure of the Sea: The Discovery of the Seaside 1750–1840*. Harmondsworth: Penguin.
- Cordell, John, and Judith Fitzpatrick
1987 Cultural Identity and the Sea in Torres Strait. *Cultural Survival Quarterly* 11(2):15–17.
- Cordell, John, and Margaret A. McKean
1992 Sea Tenure in Bahia, Brazil. In *Making the Commons Work: Theory, Practice, and Policy*. Daniel Bromley and

- David Feeny, eds. Pp. 183–206. San Francisco: Institute for Contemporary Studies.
- Creighton, Margaret, and Lisa Norling, eds.
1996 *Iron Men, Wooden Women: Gender and Seafaring in the Atlantic World, 1700–1920*. Baltimore: Johns Hopkins University Press.
- Cruikshank, Julie
2005 *Do Glaciers Listen? Local Knowledge, Colonial Encounters, and Social Imagination*. Vancouver: University of British Columbia Press.
- Davis, Susan
1997 *Spectacular Nature: Corporate Culture and the Sea World Experience*. Berkeley: University of California Press.
- Dedina, Serge
2000 *Saving the Grey Whale: People, Politics, and Conservation in Baja California*. Tucson: University of Arizona Press.
- DeLoughrey, Elizabeth
2007 *Routes and Roots: Navigating Caribbean and Pacific Island Literatures*. Honolulu: University of Hawai'i Press.
- Derné, Steve
1998 *Feeling Water: Notes on the Sensory Construction of Time and Space in Banaras*. *Man in India* 78(1–2):1–7.
- Desmond, Jane
1999 *Staging Tourism: Bodies on Display from Waikiki to Sea World*. Chicago: University of Chicago Press.
- Douglas, Mary
2002[1966] *Purity and Danger: An Analysis of the Concepts of Pollution and Taboo*. Oxon: Routledge.
- Driessen, Henk
2004 *A Janus-Faced Sea: Contrasting Perceptions and Experiences of the Mediterranean*. *Maritime Studies* 3(1):41–50.
- Durkheim, Émile
1976[1912] *The Elementary Forms of the Religious Life: A Study in Religious Sociology*. London: George Allen and Unwin.
- Ebron, Paulla A.
1998 *Enchanted Memories of Regional Difference in African American Culture*. *American Anthropologist* 100(1):94–105.
- Edwards, Paul N.
2010 *A Vast Machine: Computer Models, Climate Data, and the Politics of Global Warming*. Cambridge, MA: MIT Press.
- Einarsson, Niels
1995 *All Animals Are Equal but Some Are Cetaceans: Conservation and Culture Conflict*. In *Environmentalism: The View from Anthropology*. Kay Milton, ed. Pp. 73–84. London: Routledge.
- Escobar, Arturo
1999 *After Nature: Steps to an Antiessentialist Political Ecology*. *Current Anthropology* 40(1):1–16.
- Finamore, Daniel, ed.
2004 *Maritime History as World History*. Gainesville: University Press of Florida.
- Finney, Ben
1994 *Voyage of Rediscovery: A Cultural Odyssey through Polynesia*. Berkeley: University of California Press.
- Firth, Raymond
1946 *Malay Fishermen: Their Peasant Economy*. London: Routledge and Kegan Paul.
1983[1936] *We the Tikopia: A Sociological Study of Kinship in Primitive Polynesia*. Stanford: Stanford University Press.
- Frake, Charles
1985 *Cognitive Maps of Time and Tide among Medieval Seafarers*. *Man* 20:254–270.
- Galison, Peter
2003 *Einstein's Clocks, Poincaré's Maps: Empires of Time*. New York: W. W. Norton.
- Game, Ann
1995 *Time, Space, Memory, with Reference to Bachelard*. In *Global Modernities*. Mike Featherstone, Scott Lash, and Roland Robertson, eds. Pp. 92–208. London: Sage.
- Garrison, Edna Keah
2005 *Are We On a Wavelength Yet? On Feminist Oceanography, Radios, and Third Wave Feminism*. In *Different Wavelengths: Studies of the Contemporary Women's Movement*. Jo Reger, ed. Pp. 237–256. New York: Routledge.
- Garrity-Blake, Barbara
1994 *The Fish Factory: Work and Meaning for Black and White Fishermen of the American Menhaden Industry*. Knoxville: University of Tennessee Press.
- Gerrard, Siri
2007 *Quota Policy and Local Fishing: Gendered Practices and Perplexities*. *Maritime Studies* 6(2):53–75.
- Gilroy, Paul
1993 *The Black Atlantic: Modernity and Double Consciousness*. Cambridge, MA: Harvard University Press.
- Gladwin, Thomas
1970 *East Is a Big Bird: Navigation and Logic on Puluwat Atoll*. Cambridge, MA: Harvard University Press.
- Gunda, Bela, ed.
1984 *The Fishing Cultures of the World: Studies in Ethnology, Cultural Ecology and Folklore*. Budapest: Akadémiai Kiadó.
- Gupta, Radhika
2003 *Changing Courses: A Comparative Analysis of Ethnographies of Maritime Communities in South Asia*. *Maritime Studies* 2(2):21–38.
- Haraway, Donna
2003 *A Companion Species Manifesto: Dogs, People, and Significant Otherness*. Chicago: Prickly Paradigm.
- Hardin, Garrett
1968 *The Tragedy of the Commons*. *Science* 162(3859):1243–1247.
- Hau'ofa, Epeli
1993 *Our Sea of Islands*. In *A New Oceania: Rediscovering Our Sea of Islands*. Vijay Naidu, Eric Waddell, and Epeli Hau'ofa, eds. Pp. 2–16. Suva, Fiji: School of Social and Economic Development, USP.
- Hayden, Corinne
2003a *Suspended Animation: A Brine Shrimp Essay*. In *Remaking Life and Death: Toward an Anthropology of the Biosciences*.

- Sarah Franklin and Margaret Lock, eds. Pp. 193–225. Santa Fe, NM: School of American Research Press.
- 2003b When Nature Goes Public: The Making and Unmaking of Bioprospecting in Mexico. Princeton: Princeton University Press.
- Helmreich, Stefan
2006 Time and the Tsunami. Special issue, “Water: Resources and Discourses” Justin M. Scott Coe and W. Scott Howard, guest eds. *Reconstruction: Studies in Contemporary Culture* 6(3). <http://reconstruction.eserver.org/063/helmreich.shtml>, accessed September 17, 2010.
2009 *Alien Ocean: Anthropological Voyages in Microbial Seas*. Berkeley: University of California Press.
- Herskovits, Melville
1941 *The Myth of the Negro Past*. New York: Harper and Brothers.
- Hewes, Gordon W.
1948 The Rubric “Fishing and Fisheries.” *American Anthropologist* 50(2):238–246.
- Ho, Enseng
2006 *The Graves of Tarim: Genealogy and Mobility across the Indian Ocean*. Berkeley: University of California Press.
- Howard, P. McCall
2010 Working the Ground: Life and Death at Sea. *Anthropology News* 51(2):9, 11.
- Hurston, Zora Neale
2008[1938] *Tell My Horse: Voodoo and Life in Haiti and Jamaica*. New York: Harper Perennial Modern Classics.
- Illich, Ivan
1985 *H₂O and the Waters of Forgetfulness: Reflections on the Historicity of “Stuff.”* Dallas, TX: Dallas Institute of Humanities and Culture.
- Ingold, Tim
2000 *The Perception of the Environment: Essays on Livelihood, Dwelling and Skill*. London: Routledge.
- Jacobs, Katherine
1997 From “Spy-Glass” to “Horizon”: Tracking the Anthropological Gaze in Zora Neale Hurston. *NOVEL: A Forum on Fiction* 30(3):329–360.
- Johnsen, Jahn Peter, Petter Holm, Peter Sinclair, and Dean Bavington
2008 *Cyborg Fish: On Attempts to Make Fisheries Management Possible*. *Maritime Studies* 7(2):9–34.
- Johnson, J. C.
1996 *Maritime Anthropology*. In *The Encyclopedia of Cultural Anthropology*, vol. 3. David Levinson and Melvin Ember, eds. Pp. 726–728. New York: Henry Holt.
- Kaplan, Irene M.
1984 *Women Who Go to Sea: Working in the Commercial Fishing Industry*. *Journal of Contemporary Ethnography* 16:491–514.
- Klein, Bernhard, and Gesa Mackenthun, eds.
2004 *Sea Changes: Historicizing the Ocean*. New York: Routledge.
- Knight, David
2009 *The Making of Modern Science: Science, Technology, Medicine and Modernity, 1789–1914*. Cambridge: Polity.
- Kroeber, Alfred L.
1960 Fishing among the Indians of Northwestern California. *Anthropological Records* 21:1–210.
- Kuper, Adam
1983 *Anthropology and Anthropologists: The Modern British School*. Rev. edition. London: Routledge.
- Kurien, John
2001 People and the Sea: A “Tropical-Majority” World Perspective. *Maritime Studies* 1(1):9–26.
- Lansing, J. Stephen
1991 *Priests and Programmers: Technologies of Power in the Engineered Landscape of Bali*. Princeton: Princeton University Press.
- Lencek, Lena, and Gideon Bosker
1998 *The Beach: The History of Paradise on Earth*. New York: Penguin.
- Lévi-Strauss, Claude
1995[1955] *Tristes Tropiques*. John Weightman and Doreen Weightman, trans. New York: Penguin.
- Lorini, Alexandra
1998 The Cultural Wilderness of Canadian Water in the Ethnography of Franz Boas. *Cromohs* 3:1–7. http://www.cromohs.unifi.it/3_98/lorini.html, accessed September 17, 2010.
- Lowe, Celia
2006 *Wild Profusion: Biodiversity Conservation in an Indonesian Archipelago*. Princeton: Princeton University Press.
- Lutz, Catherine
1995 The Gender of Theory. In *Women Writing Culture*. Ruth Behar and Deborah Gordon, eds. Pp. 249–265. Berkeley: University of California Press.
- Malinowski, Bronislaw
1929 *The Sexual Life of Savages in North-Western Melanesia*. London: Routledge
1935 *Coral Gardens and Their Magic*, vol. 1: The Description of Gardening. London: Allen and Unwin.
1984[1922] *Argonauts of the Western Pacific: An Account of Native Enterprise and Adventure in the Archipelagoes of Melanesian New Guinea*. Prospect Heights, IL: Waveland.
- Malkki, Liisa
1992 *National Geographic: The Rooting of Peoples and the Territorialization of National Identity among Scholars and Refugees*. *Cultural Anthropology* 7(1):24–44.
- Maurer, Bill
2000 *A Fish Story: Rethinking Globalization on Virgin Gorda, British Virgin Islands*. *American Ethnologist* 27(3):670–701.
- Mauss, Marcel, with H. Beuchat
1979[1906] *Seasonal Variations of the Eskimo: A Study in Social Morphology*. With a foreword by J. J. Fox, trans. London: Routledge.
- McCay, Bonnie J.
1998 *Oyster Wars and the Public Trust: Property, Law, and Ecology in New Jersey History*. Tucson: University of Arizona Press.

- McCay, Bonnie J., and James M. Acheson, eds.
1987 *Question of the Commons: The Culture and Ecology of Communal Resources*. Tucson: University of Arizona Press.
- Mead, Margaret
1971[1928] *Coming of Age in Samoa*. New York: Harper Perennial.
- Miller, David Philip
2004 *Discovering Water: James Watt, Henry Cavendish and the Nineteenth-Century "Water Controversy."* Aldershot, UK: Ashgate.
- Mintz, Sidney
1985 *Sweetness and Power: The Place of Sugar in Modern History*. New York: Penguin.
- Moorthy, Shanti, and Ashraf Jamal, eds.
2009 *Indian Ocean Studies: Cultural, Social, and Political Perspectives*. London: Routledge.
- Morgan, Lewis Henry
1964[1877] *Ancient Society, or Researches in the Lines of Human Progress from Savagery through Barbarism to Civilization*. Leslie White, ed. Cambridge, MA: Harvard University Press.
- Nadel-Klein, Jane
2003 *Fishing for Heritage: Modernity and Loss along the Scottish Coast*. Oxford: Berg.
- Nieuwenhuys, Olga
1989 *Invisible Nets: Women and Children in Kerala's Fishing*. *Maritime Anthropological Studies* 2(2):174–193.
- Olson, Julia
2010 *Seeding Nature, Ceding Culture: Redefining the Boundaries of the Marine Commons through Spatial Management and GIS*. *Geoforum* 41(2):293–303.
- Orlove, Benjamin
2002 *Lines in the Water: Nature and Culture in Lake Titicaca*. Berkeley: University of California Press.
- Orlove, Benjamin, and Steve Caton
2010 *Water Sustainability: Anthropological Approaches and Prospects*. *Annual Review of Anthropology* 39:401–415.
- Oxford English Dictionary
2008 *Oceanization (s.v.)*. Draft revision of December 2008. 2nd edition. Oxford: Oxford University Press.
- Pálsson, Gísli
1991 *Coastal Economies, Cultural Accounts: Human Ecology and Icelandic Discourse*. Manchester: Manchester University Press.
1998 *The Birth of the Aquarium: The Political Ecology of Icelandic Fishing*. In *The Politics of Fishing*. Tim Gray, ed. Pp. 209–227. London: Macmillan.
- Pandian, Anand
2009 *Crooked Stalks: Cultivating Virtue in South India*. Durham, NC: Duke University Press.
- Poore, Barbara
2003 *Blue Lines: Water, Information, and Salmon in the Pacific Northwest*. Ph.D. dissertation, Department of Geography, University of Washington.
- Pottage, Alain
2006 *Too Much Ownership: Bio-Prospecting in the Age of Synthetic Biology*. *BioSocieties* 1(2):137–158.
- Raffles, Hugh
2002 *In Amazonia: A Natural History*. Princeton: Princeton University Press.
- Raban, Jonathan, ed.
1993 *The Oxford Book of the Sea*. Oxford: Oxford University.
- Rediker, Marcus
1989 *Between the Devil and the Deep Blue Sea: Merchant Seamen, Pirates, and the Anglo-American Maritime World, 1700–1750*. Cambridge: Cambridge University Press.
- Shanklin, Eugenia
1989 *Exploding Lakes and Maleficent Water in Grassfields Legends and Myth*. *Journal of Volcanology and Geothermal Research* 39:233–246.
- Siegel, Deborah L.
1997 *The Legacy of the Personal: Generating Theory in Feminism's Third Wave*. *Hypatia* 12(3):46–75.
- Søreng, S.
2007 *Fishing Rights Discourses in Norway: Indigenous versus Non-Indigenous Voices*. *Maritime Studies* (6)2:77–99.
- Spigel, Lynn
2004 *Theorizing the Bachelorette: "Waves" of Feminist Media Studies*. *Signs* 30(1):1209–1221.
- Spoehr, Alexander, ed.
1980 *Maritime Adaptations*. Pittsburgh: University of Pittsburgh Press.
- Steinberg, Philip E.
2001 *The Social Construction of the Ocean*. Cambridge: Cambridge University Press.
- Stocking, George W., Jr.
1982[1968] *From Physics to Ethnology*. In *Race, Culture, and Evolution: Essays in the History of Anthropology*, with a New Preface. Pp. 133–160. Chicago: University of Chicago Press.
- Strang, Veronica
2005 *Common Senses: Water, Sensory Experience and the Generation of Meaning*. *Journal of Material Culture* 10(1):92–120.
- Strathern, Marilyn
1980 *No Nature, No Culture: The Hagen Case*. In *Nature, Culture and Gender*. Carol MacCormack and Marilyn Strathern, eds. Pp. 174–222. Cambridge: Cambridge University Press.
- Subramani
2001 *The Oceanic Imaginary. The Contemporary Pacific* 13(1):149–162.
- Subramanian, Ajantha
2009 *Shorelines: Space and Rights in South India*. Stanford: Stanford University Press.
- Taussig, Michael
2006 *Walter Benjamin's Grave*. Chicago: University of Chicago Press.
2009 *What Color Is the Sacred?* Chicago: University of Chicago Press.
- ten Bos, R.
2009 *Towards an Amphibious Anthropology: Water and Peter Sloterdijk*. *Environment and Planning D-Society and Space* 27(1):73–86.

- Tetart, G.
1997 Divine Water and Its Symbolism: Essay on Anthropology of Religion. *L'Homme* 37(142):115–116.
- Thomas, Nicholas
1997 In *Oceania: Visions, Artifacts, Histories*. Durham, NC: Duke University Press.
- Thrift, Nigel
2003 Space. Theory, Culture, and Society: Problematizing Global Knowledge 23(2–3):139–155.
- Trawick, Paul
2001 The Moral Economy of Water: Equity and Antiquity in the Andean Commons. *American Anthropologist* 103(2):361–379.
- Treitler, Inga, and Douglas Midgett
2007 It's about Water: Anthropological Perspectives on Water and Policy. *Human Organization* 66(2):140–149.
- Tsing, Anna
2000 The Global Situation. *Cultural Anthropology* 15(3):327–360.
- van Ginkel, Rob
2008 *Coastal Cultures: An Anthropology of Fishing and Whaling Traditions*. Apeldoorn/Antwerpen, Belgium: Spinhuis.
- Venter, J. Craig
2004 Whole Environment Shotgun Sequencing: The Sargasso Sea. Paper presented at WAS . . . IS . . . MIGHT BE . . . : Perspectives on the Evolution of the Earth System, Massachusetts Institute of Technology, Cambridge, Massachusetts, March 8–9.
- Vestergaard, Torben A.
1990 The Fishermen and the Nation. *Maritime Anthropological Studies* 3:14–34.
- Walley, Christine
2004 *Rough Waters: Nature and Development in an East African Marine Park*. Princeton: Princeton University Press.
- Whatmore, Sarah
2001 *Hybrid Geographies: Natures Cultures Spaces*. London: Sage.
- Williams, Raymond
1976 *Keywords: A Vocabulary of Culture and Society*. Oxford: Oxford University Press.
- Wolf, Eric
1982 *Europe and the People without History*. Berkeley: University of California Press.
- Wylie, Alison
2006 Afterword: On Waves. In *Feminist Anthropology: Past, Present, and Future*. Pamela Geller and Miranda Stockett, eds. Pp. 167–176. Philadelphia: University of Pennsylvania Press.
- Zerner, Charles
2003 Sounding the Makassar Strait: The Poetics and Politics of an Indonesian Marine Environment. In *Culture and the Question of Rights: Forests, Coasts, and Seas in Southeast Asia*. Charles Zerner, ed. Pp. 56–108. Durham, NC: Duke University Press.

FOR FURTHER READING

(These selections were made by the American Anthropologist editorial interns as examples of research related in some way to this article. They do not necessarily reflect the views of the author.)

- Alatout, Samer
2009 Bringing Abundance into Environmental Politics: Constructing a Zionist Network of Water Abundance, Immigration, and Colonization. *Social Studies of Science* 39(3):363–394.
- Aswani, Matthew Lauer Shankar
2009 Indigenous Ecological Knowledge as Situated Practices: Understanding Fishers' Knowledge in the Western Solomon Islands. *American Anthropologist* 111(3):317–329.
- Ennis-McMillan, Michael C.
2001 Suffering from Water: Social Origins of Bodily Distress in a Mexican Community. *Medical Anthropology Quarterly* 15(3):368–390.
- Kirsch, Stuart
2008 Social Relations and the Green Critique of Capitalism in Melanesia. *American Anthropologist* 110(3):288–298.
- Lahood, Gegg
2008 Paradise Bound: A Perennial Tradition or an Unseen Process of Cosmological Hybridization? *Anthropology of Consciousness* 19(2):155–189.
- McLean, Stuart
2009 Stories and Cosmogonies: Imagining Creativity beyond “Nature” and “Culture.” *Cultural Anthropology* 24(2):213–245.
- Ruiz-Ballesteros, Esteban, Jose Maria Valcuende, Victoria Quintero, José Antonio Cortes, and Elena Rubio
2009 Naturalizing the Environment Perceptual Frames, Senses and Resistance. *Journal of Material Culture* 14(2):147–167.